REMARKS

First, the Examiner is thanked for the many courtesies extended to the undersigned in telephone conversations on January 14 and 22, 2009. On January 14th, brief arrangements were made for a detailed discussion on January 22nd. On January 22nd, several possible amendments to the claims were reviewed, although agreement with respect to the claims was not reached. In the latter part of the conversation on January 22nd, the inventors, Drs. Donald L. Rymer and Nolan K. Read, III, joined the teleconference to describe the surprisingly superior results achieved by practicing the process of the invention and the extensive experimentation that was required to arrive at the invention.

In a second preliminary matter, claim 6 is amended herein to include the features that the aqueous reaction mixture is stabilized by raising the pH of the aqueous reaction mixture to a pH of at least 7 and draining the liquid from the aqueous reaction mixture. In addition, the process of claim 6 now includes the steps of mixing the polyvinyl butyral resin composition with a plasticizer in an amount of from about 30 to about 50 pph and extruding the plasticized polyvinyl butyral resin composition to form a sheet having a tensile creep of less than 2.5. The plasticizer is selected from the group consisting of triethyleneglycol di-(2-ethyl hexanoate) (3GO), dibutyl sebacate (DBS) and tetraethylene glycol di(2-heptanoate) (4G7).

A basis for this amendment appears in the specification on page 1 at lines 14 to 23, in the paragraph bridging pages 5 and 6, in the Examples of the invention, and in the claims as originally filed, *inter alia*. Several purely formal amendments to claim 6 are also presented herein. These amendments are unrelated to patentability and do not affect the scope of the claims. Accordingly, no new matter is introduced into the application by the present amendments to claim 6. Claim 8, being redundant in light of the present amendments to claim 6, is concomitantly cancelled without prejudice herein.

In a third preliminary matter, it is well established that "[t]he propriety of a restriction requirement should be reconsidered when all the claims directed to the

elected invention are in condition for allowance, and the nonelected invention(s) should be considered for rejoinder." M.P.E.P. § 821.04. Furthermore, "[r]ejoined claims must be fully examined for patentability in accordance with 37 CFR 1.104." *Id.*

First in this connection, Applicants believe, for the reasons set forth in detail below and earlier in the prosecution, that elected process claims 6 and 9 through 12 are in condition for allowance.

Second, withdrawn independent composition claim 1 and withdrawn independent product-by-process claim 13 are amended herein to include the pertinent features of newly amended independent process claim 6. See again the M.P.E.P. at § 821.04. In fact, newly amended claim 13 now explicitly depends from claim 6. Therefore, by statute (35 U.S.C. § 112, 4th paragraph), claim 13 includes all of the features of claim 6. Claim 1, as amended herein, includes all of the features of the plasticized polyvinyl butyral resin composition produced by the process of claim 6. The basis for these amendments is the same as that cited above and earlier in the prosecution for the corresponding amendments to claim 6. Newly amended claims 1 and 13 are now believed to be patentable, for at least the same reasons as claim 6.

Concomitantly, withdrawn claims 2, 3 and 5 are amended for consistency with newly amended claim 1; withdrawn claims 14, 15, 16 and 18 are amended for consistency with newly amended claim 13; and withdrawn claims 4 and 17 are cancelled as redundant in light of the present amendments to claims 1 and 13. New claims 19 and 20 are also introduced herein. These claims are directed to subject matter that was removed from claim 2 by the amendments presented herein. Claims 2, 3, 5, 14, 15, 16, 18, 19 and 20 are also believed to be patentable, for at least the same reasons as newly amended claims 1 and 13, from which they depend, directly or indirectly.

Third, the restriction requirement was timely traversed. As is set forth in detail in Applicants' response filed on September 17, 2006, the claims are not lacking unity because they share a special technical feature (37 C.F.R. § 1.475(a)). Specifically, the

plasticized polyvinyl butyral resin composition is an explicitly recited feature of claims 1 and 6. By operation of statute, the plasticized polyvinyl butyral resin composition is also a feature of claim 13. Moreover, it is well established that unity of invention exists between a "product and a process specially adapted for the manufacture of said product." 37 C.F.R. § 1.475(b)(1). Here, claim 1 is drawn to the plasticized polyvinyl butyral composition, and claim 6 is drawn to a process for making the plasticized polyvinyl butyral resin composition. Thus, there is no lack of unity between claim 1 and claim 6. Likewise, the patentability of product-by-process claim 13 is based on the patentability of the product itself. See, e.g., M.P.E.P. at § 2113. Thus, there is unity between claim 1 and claim 13. There is also unity between claims 6 and 13, because claim 13, as amended herein, depends directly from claim 6. Significantly in this connection, no rejection for lack of unity was made in the international phase of the prosecution of this application.

Fourth, it is similarly well established that rejoinder of a product claim with a process claim that includes all of the limitations of the product claim **must** be considered. See, for example, the M.P.E.P. at § 821.04(b). This is plainly the case with respect to product claim 1, as amended herein, and process claim 6.

For at least these reasons, then, Applicants respectfully request that the requirement for restriction set forth in the Official Action issued on March 17, 2006, be withdrawn upon reconsideration, and that non-elected claims 1, 2, 3, 5, 13 through 16 and 18 be rejoined for examination with the elected claims.

Turning now to substantive issues, the Official Action issued on December 10, 2008, has repeated and made final the rejection of claims 6, 8, 10 and 11 under 35 U.S.C. 103(a) as obvious over European Patent No. 0 402 213 by Klock (hereinafter "Klock") in view of U.S. Patent No. 3,153,009, issued to Rombach et al. (hereinafter "Rombach"). In addition, the rejection of claim 9 under 35 U.S.C. 103(a) as unpatentable over Klock in view of Rombach and further in view of U.S. Patent 6,472,054, issued to Aurenty et al. (hereinafter "Aurenty"), has been repeated and made

final. Finally, the rejection of claim 12 under 35 U.S.C. 103(a) as unpatentable over Klock in view of Rombach further in view of U.S. Patent 5,559,175 issued to Kroggel et al. (hereinafter "Kroggel") has also been repeated and made final.

These are the sole substantive reasons set forth in the Official Action why the present claims should not be allowed. The facts and reasoning set forth earlier in the prosecution are neither withdrawn nor abandoned. In addition, Applicants respectfully traverse these rejections for the further reasons set forth below.

It is well established that a *prima facie* case of obviousness is not made out unless every element of the claim is found in the prior art. M.P.E.P. at § 2143.

Here, the primary reference, Klock, describes a polyvinyl butyral composition and a method of synthesizing the composition. Klock, however, provides no description of several of the explicitly features of newly amended claim 6. For example, as has been discussed at length in previously submitted responses, Klock includes no teaching or suggestion whatsoever regarding the specifically claimed temperature profile of the reaction.

In addition, according to Klock, a certain minimum value of creep is described as a key property of the polymer. Klock, page 2 at lines 40 to 44; English translation, first two paragraphs on page 3. Even so, Klock's examples do not include any experiments in which the creep is other than 56%. Moreover, Klock clearly states that suitable polymers have a creep value of **at least 60%**. Klock, page 3 at lines 43 to 44; English translation, middle of page 4. In contrast, claim 6, as amended herein, plainly requires that the tensile creep of the plasticized polyvinyl butyral composition be **less than 2.5[%]**. Indeed, the specification is replete with examples of plasticized polyvinyl butyral compositions in which the tensile creep is less than 2.5, less than 2, and even less than 1.5. See Table 1 on page 13. (Parenthetically, although Applicants and Klock have determined creep by different methods and at different temperatures, both Klock's values and Applicants' values are reported as percentage changes in the size of the test

specimen. See specification on page 12 at lines 13 to 28; Klock on page 3 at lines 28 to 44; English translation, middle of page 4.)

Nor does Klock include any teaching or suggestion whatsoever regarding the claimed plasticizers, or the recited amounts of plasticizers. Klock states merely that "the PVB is plasticized in a known way using usual plasticizers for example those described in the publications of European patents 0011577 or 0047215." Klock, page 3 at lines 19 to 21; English translation, second paragraph on page 4. Inspection of the corresponding U.S. Patent Nos. 4,243,572 and 4,371,586 reveals that Klock is referring to adipate plasticizers, which are not within the scope of newly amended claim 6. Plasticizers that are "glycol esters of carboxylic acids, or dialkyl or alkoxyalky esters of dicarboxylic acids," are described in those broad generic terms in the background of U.S. Patent No. 4,243,572. There is nothing in that description, however, that enables one to immediately envision the specifically claimed triethyleneglycol di-(2-ethyl hexanoate) (3GO), dibutyl sebacate (DBS) and tetraethylene glycol di(2-heptanoate) (4G7) plasticizers. See the M.P.E.P. at § 2143.08(II).

Significantly, Rombach provides no teaching or suggestion regarding the stereochemistry of the polymer, or the role of the type and level of the surfactant in determining the stereochemistry (M/R ratio). Nor is there, in Rombach, any mention whatsoever of sodium methyl cocoyl taurate, the surfactant required by the plain language of newly amended claim 6, or of tensile creep, which is correlated both with the polymer's stereochemistry and the surfactant type and level. Finally, Rombach does not include any teaching or suggestion regarding the specifically recited plasticizers or amounts of plasticizers. It follows by logic that, when considered in combination with Klock, Rombach does not add to what is taught or suggested by Klock on these subjects. Therefore, Rombach, whether considered individually or in combination with Klock, does not teach or suggest every element of the claimed invention. Consequently, Applicants respectfully submit that claim 6, as amended herein, is not obvious over Klock in view of Rombach.

With respect to the tertiary references cited in the Official Action, Aurenty, whether considered alone or in combination with Klock and Rombach, does not teach or suggest all of the features of the claimed invention. For example, Aurenty provides no teaching or suggestion regarding any plasticizer, much less the specifically recited plasticizers or amounts of plasticizers. Nor does Aurenty describe the claimed reaction conditions, the claimed process steps, the meso to racemic ratio, or the specifically recited physical properties of the polyvinyl butyral resin composition.

In fact, the surfactants described in Aurenty are used for reasons that are conventional in the formulation of printing inks, for example to stabilize polymers in solution or to optimize the wetting of a printing plate or a printed substrate. See, e.g., Aurenty in column 3 at lines 13 to 42. In contrast, Applicants have carefully selected the specifically recited surfactants for their use in the synthesis of polyvinyl butyral, where their unexpected beneficial effects include promoting plasticizer compatibility, promoting particle nucleation, enhancing butyraldehyde diffusion, and determining the polymer's stereochemistry. Plainly, the ink formulations of Aurenty are completely inapposite to the invention at hand. Nor could the success of Applicants' claimed process for polymer synthesis be predicted, based on the use of a particular surfactant to control ink spreading. For these reasons, Applicants respectfully submit that claim 6 is not obvious over Klock in view of Rombach and further in view of Aurenty.

Last, Kroggel, whether considered alone or in combination with Klock and Rombach, likewise does not teach or suggest all of the features of the claimed invention. Kroggel provides no teaching or suggestion of the specifically recited plasticizers, merely a generic reference to the *Modern Plastics Encyclopedia* and a brief description of some "diesters of aliphatic diols with aliphatic carboxylic acids". See the paragraph bridging columns 6 and 7. Kroggel also does not describe the claimed reaction conditions, the claimed process steps, the meso to racemic ratio, or the specifically recited physical properties of the polyvinyl butyral resin composition. Therefore, claim 6 is also not obvious over Klock in view of Rombach and further in view of Kroggel.

Accordingly, Applicants respectfully request that the rejection of claim 6, as amended herein, under 35 U.S.C. § 103 be withdrawn upon reconsideration.

In closing, the rejection of claim 8 is rendered moot by its cancellation herein without prejudice to the introduction of its subject matter later in the prosecution or in a continuing application. Furthermore, claims 9 to 12 depend, directly or indirectly, from claim 6. It follows by statute that claims 9 to 12 are also not obvious over the cited references, for at least the same reasons that newly amended claim 6 is not obvious. Consequently, Applicants further respectfully request that the rejections of claims 9 to 12 under 35 U.S.C. § 103 also be withdrawn upon reconsideration.

Conclusion

Should any fee be required in connection with the present response, the Examiner is authorized to charge such fee, or render any credit, to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

In view of the foregoing amendments and remarks, it is believed that the pending claims are in condition for immediate allowance, and such action is earnestly solicited. Should the Examiner believe that an interview or other action in Applicants' behalf would expedite prosecution of the application, the Examiner is urged to contact Applicants' undersigned attorney by telephone at (302) 892-1004.

Respectfully submitted,

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